

Amendments to the CLAIMS:

The listing of claims will replace all prior versions and listings, of claims in the instant application:

Listing of Claims

Claims 1-137. (Previously Cancelled)

Claims 138-172. (Currently Cancelled)

173. (CURRENTLY AMENDED) A method of identifying a compound that putatively enhances, inhibits, or elicits bitter taste in a human subject comprising (4) (i) screening one or more compounds in a screening assay which identifies compounds that specifically bind to or inhibit the specific binding of a ligand to a human T2R61 taste receptor polypeptide, wherein said T2R61 taste receptor polypeptide is selected from the group consisting of: (a) a T2R61 polypeptide comprising the sequence of SEQ ID NO:8; (b) a T2R61 polypeptide having at least 95% sequence identity to the polypeptide of SEQ ID NO:8 that specifically binds a ligand bound by the T2R61 polypeptide of SEQ ID NO:8; (c) a T2R61 polypeptide encoded by the nucleic acid sequence that hybridizes under stringent hybridization conditions to the nucleic acid sequence in SEQ ID NO:7 wherein stringent hybridization conditions are hybridization in 5XSSC, 1% SDS, incubation at 65 degrees C and wash in 2XSSC and 0.1% SDS at 65 degrees C and which T2R61 polypeptide specifically binds to a ligand that is specifically bound by the T2R61 polypeptide of SEQ ID NO:8, and (2) (ii) identifying a compound as putatively enhancing, inhibiting or eliciting a T2R61 associated bitter taste sensation in a human subject based on its specific binding to a human T2R61 polypeptide according to (a), (b) or (c) or its modulation (inhibition or enhancement) of the specific binding of another ligand to a T2R polypeptide according to (a), (b) or (c).

174. (CURRENTLY AMENDED) The method of claim 173, wherein the human T2R61 polypeptide has the sequence ~~contained in~~ of SEQ ID NO:8.

175. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide possesses at least 95% sequence identity to the T2R61 polypeptide of SEQ ID NO:8.

176. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide is encoded by a nucleic acid sequence that hybridizes to SEQ ID NO:7 according to stringent hybridization conditions as set forth in (c).

177. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide possesses at least 96% sequence identity to the polypeptide of SEQ ID NO:8.

178. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide possess at least 97% sequence identity to the T2R61 polypeptide of SEQ ID NO:8.

179. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide possesses at least 98% sequence identity to the T2R61 polypeptide of SEQ ID NO:8.

180. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide possesses at least 99% sequence identity to the T2R61 polypeptide of SEQ ID NO:8.

181. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide is in solution.

182. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide is attached to a solid phase.

183. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the T2R61 polypeptide is in a lipid bilayer or vesicle.

184. (CURRENTLY AMENDED) The method of claim 173 wherein the T2R61 polypeptide is an isolated polypeptide or is expressed by a cell.

185. (PREVIOUSLY PRESENTED) The method of claim 184 wherein the cell is a eukaryotic cell.

186. (PREVIOUSLY PRESENTED) The method of claim 184 wherein the cell is a mammalian cell.

187. (PREVIOUSLY PRESENTED) The method of claim 183 wherein the cell is a bacterial, yeast, amphibian or mammalian cell.

188. (PREVIOUSLY PRESENTED) The method of claim 183 wherein the cell is a CHO, COS, HEK-293 cell or a Xenopus oocyte.

189. (PREVIOUSLY PRESENTED) The method of claim 173 wherein the binding of the compound is detected by assaying for changes in conformation of said T2R polypeptide.

190. (PREVIOUSLY PRESENTED) The method of claim 189 wherein said changes are detected by NMR spectroscopy.

191. (PREVIOUSLY PRESENTED) The method of claim 189 wherein the changes in conformation are detected by fluorescence spectroscopy.

192. (PREVIOUSLY PRESENTED) The method of claim 183 wherein the cell also expresses a G protein that functionally couples to said T2R polypeptide.

193. (PREVIOUSLY PRESENTED) The method of claim 192 wherein said G protein is Galpha16, Galpha16 or gustducin.

194. (PREVIOUSLY PRESENTED) The method of claim 173 wherein binding of a compound to said T2R polypeptide is detected using a fluorescently or radioactively labeled ligand.

195. (PREVIOUSLY PRESENTED) The method of claim 194 wherein the method detects displacement of the labeled ligand from said T2R polypeptide by fluorescence polarization or a FRET assay.

196. (PREVIOUSLY PRESENTED) The method of claim 192 wherein said G protein is a promiscuous G protein.

197. (CURRENTLY AMENDED) The assay of claim 173 wherein the assay for identifying a compound which modulates a human T2R61 detects a compound that specifically responds to a bitter ligand by a method which comprises:

- i. screening a compound for its effect on the activation of said hT2R61 polypeptide and
- ii. determining whether said compound modulates hT2R61 associated bitter taste based on its effect on the activation of said receptor.

198. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said hT2R61 has the amino acid sequence of SEQ ID NO: 8.

199. (PREVIOUSLY PRESENTED) The assay of claim 197 wherein said taste receptor is expressed on a cell or cell membrane.

200. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said taste receptor is expressed on an isolated cell membrane.

201. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said taste receptor is expressed on an intact cell.

202. (CURRENTLY AMENDED) The assay of Claim 197 wherein said taste receptor is an isolated polypeptide or is expressed by a eukaryotic cell.

203. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said taste receptor is expressed by an amphibian, mammalian or insect cell.

204. (CURRENTLY AMENDED) The assay of Claim 203 wherein said taste receptor is expressed by a cell selected from an HEK293, ~~BHK~~, COS, HEK293T, CHO and Xenopus oocyte.
205. (PREVIOUSLY PRESENTED) The assay of Claim 197 which is a fluorimetric assay.
206. (PREVIOUSLY PRESENTED) The assay of Claim 197 which is a binding assay.
207. (PREVIOUSLY PRESENTED) The assay of Claim 197 which detects the effect on said compound by assaying its effect on an intracellular ion concentration.
208. (PREVIOUSLY PRESENTED) The assay of Claim 197 which detects the effect of said compound on intracellular sodium or calcium.
209. (PREVIOUSLY PRESENTED) The assay of Claim 197 which detects the effect of said compound on cell membrane potential.
210. (CANCELLED)
211. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein in said compound is selected based on its ability to block interaction of said taste receptor with a bitter ligand.
212. (PREVIOUSLY PRESENTED) The assay of Claim 197 which detects the effect of said compound on intracellular cAMP, cGMP or IP3.
213. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said taste receptor comprises the extracellular domain or transmembrane region of said taste receptor.
214. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said assay detects changes in calcium using a calcium specific fluorescent dye.
215. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said assay detects changes in intracellular calcium using a dye selected from Fluo-3, Fluo-4 and Fura-2.
216. (CANCELLED)
217. (CANCELLED)
218. (PREVIOUSLY PRESENTED) The assay of Claim 197 which detects the effect of said compound on the complexing of said taste receptor with a G protein.
219. (PREVIOUSLY PRESENTED) The assay of Claim 197 which detects the effect of said compound on the complexing of said taste receptor with a G protein selected from transducin, gustducin, G α 15, G α 16. or a chimera thereof.

220. (PREVIOUSLY PRESENTED) The assay of Claim 197 which is a fluorescence polarization assay.

221. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein said taste receptor is attached to a solid phase substrate.

222. (PREVIOUSLY PRESENTED) The assay of Claim 197 which is a high throughput assay.

223. (PREVIOUSLY PRESENTED) The assay of Claim 197 wherein the taste receptor is expressed by a HEK293 cell.